

# **MODIS TECHNICAL TEAM MEETING**

**March 31, 1995**

The MODIS Technical Team Meeting was chaired by Vince Salomonson. Present were Ed Masuoka, Al Fleig, Dick Weber, David Herring, Bill Barnes, Joann Harnden, Wayne Esaias, Steve Ungar, Yoram Kaufman, and Locke Stuart.

## **1.0 SCHEDULE OF EVENTS**

April 5-7	MODLAND Workshop
April 11-13	EDC Land DAAC Advisory Panel
April 15	Quarterly Reports Due to Barbara Conboy
April 18-19	Science Software Integration and Test Workshop
April 28	Level 2 Software Integration Review
April 30 - May 1	CEOS Meeting -- Best Western Hotel, Lanham, MD
May 2	MODIS Calibration Working Group -- Greenbelt Marriott
May 3 - 5	MODIS Science Team Meeting -- Greenbelt Marriott

## **2.0 MINUTES OF THE MEETING**

### **2.1 MODIS Project Reports**

Weber reported that SBRC continues to test the MODIS engineering model (EM) in ambient in the thermal vacuum chamber. The first dichroic is still scattering spurious light, but SBRC is working to address this problem.

According to Barnes, based on Breault's and Gerry Godden's modeling of the light scattered from the first dichroic, the problem is very bad--about 80 to 90 percent of the entire scattered light problem. Barnes said SBRC is talking to OCLI, the company that designed and built the MODIS dichroics, to see how much better they could do if they rebuilt the first dichroic. Also, Barnes stated that SBRC may propose trading some scientific capabilities in the instrument for fixing the first dichroic. For example, they are considering making the first dichroic simpler by putting in fewer layers. Consequently, the spectral response between MODIS bands 18 and 19 will be sloped--which will tend to push the response toward shorter wavelengths--rather than squared. Barnes feels that this change may impact band 5 (TM SWIR band), but will likely not affect the cirrus band, band 26. He concluded that no trades will be made until after all the options have been considered.

Weber added that there is also a potential polarization impact if the first dichroic is changed, which would affect all VIS/NIR bands because it splits the VIS/NIR light from the infrared. He emphasized that the Goddard MODIS personnel need to fully understand the parameters of the trade space as SBRC studies tradeoff options.

## **2.2 SDST Reports**

Masuoka reported that the Critical Design Review for the Level 1A and Geolocation data went well. Masuoka stated that MODIS and CERES have both agreed to use nested ISCCP grids to provide discipline-specific grids for each Discipline Group. There will be an article in the next issue of The Earth Observer giving details of the grid. Additionally, Bob Evans agreed to use a nested ISCCP grid for the Ocean Group. The University of Miami is prepared to deliver SeaWiFS code for beta testing on Monday, April 4, 1995.

### **2.2.1 MODIS Synthetic Data**

Fleig reported that SDST put the first MODIS synthetic data set on its server this week. By the end of April, SDST plans to have a synthetic data set that includes atmosphere data in it that is as good as or better than the atmosphere data used for writing the MODIS specifications.

### **2.2.2 Ghosting Correction Software**

Fleig stated that SDST has released a draft of Shiyue Qiu's paper on the MODIS ghosting correction software. Fleig said he has discussed the problem of also correcting for the MODIS scattered light problem. Qiu feels that scattered light is a much harder problem to define, so it is harder to correct for in the software. However, if there were good mathematical definitions of each surface, then Qiu feels he could devise a better software correction algorithm.

Weber pointed out that the Breault model does have some numbers on the dichroic surfaces. Fleig acknowledged this, stating that he and Qiu hope to work with Breault when they finish their modeling. Weber observed that it would be interesting to run the ghosting removal software on some input of scattered light test data to see what happens.

### **2.2.3 Geolocation ATBD**

Masuoka reported that SDST's Geolocation ATBD went to the Technical Publications office for preparation as a TM on Monday. The geolocation ATBD will be available on Mike King's EOS Project Science the World Wide Web (WWW) site.

## **2.3 Additional BOREAS Campaigns**

Ungar reported on the 3-day BOREAS meeting, at which he said the MODIS Land Group was well represented by Zhengming Wan and representatives from Steve Running's and Alfredo Huete's groups. Ungar stated that the BOREAS Team is pushing to have the MODIS Airborne Simulator (MAS) flown again as part of its next field campaign in 1996. The BOREAS Team would like to include MAS for two reasons: (1) they are interested in developing BOREAS parameter maps (currently derived primarily from Landsat 5, which is not likely to be fully functional in late 1996), and (2) the MODLAND Group needs blue band coverage to test their algorithms.

Ungar stated that, based on preliminary processing of BOREAS 1994 MAS data, the Team has good prospects for improving the southern study area parameter maps for that year and is confident that MAS can serve as an adequate replacement for Landsat in 1996. The team is also confident that blue bands can be configured on MAS; they are curious as to why blue bands were not included on the instrument to begin with. Kaufman responded that a blue channel was not included initially by its principal investigators because its inclusion would eliminate water vapor channels at longer wavelengths.

Ungar told the Technical Team that currently there are two major obstacles to including MAS in the 1996 BOREAS campaign: (1) obtaining approval from Headquarters and the instrument's principal investigators, and (2) including a blue band(s) on the instrument. Otherwise, he said, the 1996 BOREAS campaign has been approved by NASA Headquarters, which is committing \$500K to the effort. BOREAS principal investigator Piers Sellers is also looking for alternative funding sources.

## **2.4 SCAR-B**

Kaufman announced that the SCAR-B (Smoke, Clouds, and Radiation) campaign in Brazil has been approved and all logistics confirmed as planned, except the possible inclusion of AVIRIS (Airborne Visible and Infrared Imaging Spectrometer). The campaign is scheduled to run from Aug. 15 to Sept. 15, 1995.

Kaufman said he still hasn't identified who will fund the transport of AVIRIS to Brazil for the campaign; however, he noted that Diane Wickland, MODIS co-program scientist, will fund the processing of any AVIRIS data obtained during SCAR-B. Kaufman said he is reluctant to conduct SCAR-B with only one multi-spectral scanner (the MAS) because that presents a single point of failure in obtaining remote sensing data. Additionally, AVIRIS has blue bands, water vapor channels, and has been well characterized so it has good calibration. Kaufman concluded that the SCAR-B Team needs an additional \$80K to fund AVIRIS deployment costs.

Esaias said he may be interested in contributing some MODIS Ocean Group resources to the effort if he can get some ocean color data from the SCAR-B campaign in return. He is particularly interested in obtaining remote sensing data over the Orinoco River plume.

## **3.0 ACTION ITEMS**

### **3.1 Action Items Carried Forward**

1. *Dave Diner & Ed Masuoka:* MODIS and MISR need to settle on a protocol(s) to deal with Level 1 and Level 2 data sets to be passed between the two teams to produce joint products. Report at the next SWAMP Meeting.

2. *Guenther*: Report the modeled results of the 1,000K source for SBRC's integration and alignment collimator to the Technical Team.
3. *Weber*: Work with SBRC to obtain MODIS test data. [Test data are forthcoming from SBRC.]
4. *Fleig and Ungar*: Interact with the group leaders to develop a MODIS data simulation plan for review at the next Science Team Meeting. [Work on this item is still in progress.]